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EXAMINER				
ORTIZ RODRIGUEZ, CARLOS R				
ART UNIT		PAPER NUMBER		
2123				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/591,816

Applicant(s)

BOUTIN, SAMUEL

Examiner

CARLOS ORTIZ RODRIGUEZ

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/25/09.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

1. Claims 1-8 and 10 are pending.
2. Claims 9 and 11 are cancelled.

Response to Arguments

3. Applicant's arguments filed 9/25/09 have been fully considered but they are not persuasive.

Please note that Applicant's arguments (Page 7 last two lines and Page 8 Lines 1-2) indicate that: "Kita does not describe assigning to a service implemented by an embedded electrical system behavioral automata **fixing** allowed sequencing of user requests and responses of the electrical system to the user requests". Note that the entire specification of the Instant Application contains three portions that relate to the term **"behavioral automata which fixes/fixing allowed sequencing of user requests and system responses"**. Those three portions are as follows:

- In the method one or more user requests and system responses are assigned. Next, a behavioral automata is assigned to the service, which **fixes** the allowed sequencing of the user requests and system responses. Then, a skeleton validation environment is automatically generated for the service. (see the Abstract of the Instant Application).
- Accordingly, the present invention provides a method of designing a validation environment for a service implemented by an embedded electrical system, the method including: a) assigning to said service one or more user requests and system responses thereto; b) assigning to said service a behavioral automata, said behavioral automata **fixing** the allowed sequencing of said user requests and system responses. (see Page 3 Lines 11-17 of the Instant Application).
- Next, it is necessary to assign to the service a behavioral automata,

Which **fixes** the allowed sequencing of the user requests and system responses. FIG. 3 illustrates the definition and content of the behavioral automata of a service. (see Page 7 Lines 27-29 of the Instant Application).

From the portions reproduced above it is clear that the Instant Application does not contain a clear and specific definition for the word “fixes/fixing” as it relates to the behavioral automata, the user requests and the system responses. Therefore, the term: ***“behavioral automata which fixes/fixing allowed sequencing of user requests and system responses”***, is being given the broadest reasonable interpretation in light of the disclosure of the Instant Application. This term is being interpreted as “assigning to a service a finite state machine which contains a defined path structure where outputs are determined based on states and transitions”, as shown by Kita. Please see the claim rejections and analysis below.

Additionally, regarding the terms “system responses” and “user requests”. Note that the specification of the Instant Application indicates that: system responses are states and that user requests are transitions. (see Page 10 Lines 1-8 of the Instant Application).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-6 and 8 and 10 are rejected under 35 U.S.C. 102 (b) as being anticipated by Kita et al. U.S. Patent No. 5,394,347 (hereinafter Kita).

a. **Regarding claim 1 and 10**, Kita discloses a processor and computer readable storage medium including program code stored thereon for performing the method of designing a validation environment for a service implemented by an embedded electrical system (Abstract; C1 L7-10 and C6 L3-43), the method including: assigning to said service one or more user requests and system responses of the electrical system thereto (C4 L46-68, C5 L1-16 and C6 L3-11, note that system responses are being interpreted as states with connecting transitions and that the user requests are being interpreted as the transitions between the states associated with the events); assigning to said service a behavioral automata, said behavioral automata fixing allowed sequencing of said user requests and said system responses (Abstract and C5 L64 - - see that this limitation is being interpreted as "assigning to a service a finite state machine which contains a defined path structure where outputs are determined based on states and transitions"; see the EFSM); automatically generating a skeleton validation environment for said service (C29 L18-30 - - see generating a program shell; also see the path file), in the form of a program executable on a simulation tool (C29 L18-30 - - see the direct execution in the C language), said skeleton validation environment including a testing automata (Abstract L17-21- - see the test program ... to be tested and testing its functions as represented by the transition taken) produced from a traversal of said behavioral automata (Abstract L21- - see traversing the EFSM), a model of initial conditions (C22 L55-56 - - see that for every model it is possible to declare and initialize variables), models of user requests, models of system response

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accuracy (C4 L46-68, C5 L1-16 and C6 L3-11, see the states with connecting transitions and the transitions between the states associated with the events), an environmental model and dataflow and control flow which assemble these models together (this limitation is implied by the definition of the EFSM), and said skeleton validation environment covering all user requests (C16 L26-29 and C29 L18-30) and resultant system responses of said service (C30 L11-19); and recording said skeleton validation environment in a computer readable memory device for use by a design validation tool (C17 L49-51 and C4 L3-29).

b. **Regarding claim 2**, Kita discloses assigning to each user request a function implementing each user request and assigning to each system response one or more functions implementing each user request, a dataflow of said skeleton validation environment being built using said functions of user request and system response (C16 L26-38, C29 L64-68 and C30 L1-11 - - see the function Force; C30 L11 - - see verifying/ringing "Bell1"; see the assignment of functions implementing the requests and responses of the model and calling said functions by the verification model. The body of said functions has to be implemented by the user).

c. **Regarding claim 3**, Kita discloses assigning to said service a black box interface, whose input and output correspond to the input and output of at least one of the functions implementing the service, and interfacing the output of said service black box with a skeleton input and a skeleton output with the input of said service black box and completing and correcting skeleton and service specification in a simulation

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environment to yield a validation result (C29 L64-68 - - see the function Force; C30 L11 - - see verifying/ringing "Bell1"; see the assignment of functions implementing the requests and responses of the model and calling said functions by the verification model. Please note that the term/concept of "black box" is implicitly disclosed by the Kita reference because the Kita reference discloses input/output models and behavioral models and analyzing the outputs of these models in response to selected inputs and execution conditions, in order evaluate the compliance of a system/component.)

d. **Regarding claim 4**, Kita discloses including outputting a validated model which includes the validation environment for said service and a validated model of the service (C10 L51-59 - - see the compiled model).

e. **Regarding claim 5**, Kita discloses substituting a model of the service with its software implementation (C4 L30-34).

f. **Regarding claim 6**, Kita discloses substituting a model of the service with its software and hardware implementation and embedding said validation environment on a testing platform interfaced with said hardware implementation (C4 L30-34).

g. **Regarding claim 8**, Kita discloses assigning a validation environment for several services sharing at least one user request and mixing said validation environments of said service implemented by an embedded electrical system to yield a validation environment for said services (Fig 5 - - see "RingBell1" and "Ring Bell2").

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kita et al. U.S. Patent No. 5,394,347 (hereinafter Kita) in view of Giusto, Paolo et al., "Automotive Virtual Integration Platforms: Why's, What's, and How's", IEEE 2002 (hereinafter Giusto).

a. **Regarding claim 7**, Kita teaches all the limitations of the base claims as outlined above.

But Kita fails to clearly specify a systematic injection of faults for all replicated objects in a fault tolerant system, such as a brake-by-wire system in a vehicle.

However, Giusto teaches a systematic injection of faults for all replicated objects in a fault tolerant system, such as a brake-by-wire system in a vehicle (see sectioned labeled "Introduction", 3rd Paragraph).

Kita and Giusto are analogous art because they are from the same field of endeavor. They both relate to system integration analysis and design environments for simulations.

Therefore at time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the above teachings taught by Kita and combining them with the teachings taught by Giusto.

One of ordinary skill in the art would have been motivated to do this modification in order to prove system safety and robustness to faults, as early as possible in a development process as suggested by Giusto (see for example the section labeled "Conclusion").

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is 571-272-3766. The examiner can normally be reached on Mon-Fri 10:00 am- 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Carlos Ortiz-Rodriguez
Patent Examiner
Art Unit 2123

January 4, 2010

/Paul L Rodriguez/
Supervisory Patent Examiner, Art Unit 2123